

021



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|--------------------------|------------------|
| 10/815,286 | 03/31/2004 | Yimin Hsu | HIT1P061/HSJ920030261US1 | 8345 |

50535 7590 09/13/2006

ZILKA-KOTAB, PC
P.O. BOX 721120
SAN JOSE, CA 95172-1120

EXAMINER

RENNER, CRAIG A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2627

DATE MAILED: 09/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/815,286

Applicant(s)

HSU ET AL.

Examiner

Craig A. Renner

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 13-19 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 and 6 is/are allowed.
- 6) ☒ Claim(s) 5 and 7-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>31 March 2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of "group (I)," claims 1-12, in the reply filed on 24 August 2006 is acknowledged. Accordingly, claims 13-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim.

Drawings

2. The drawings are objected to because of the following informalities:

a. the drawings fail to comply with 37 CFR 1.84(p)(5) because they include one or more reference signs not mentioned in the description. Note, for instance, "2" (shown twice in FIG. 1), "10" (shown twice in FIG. 9), "1102" (shown in FIG. 10), "1104" (shown in FIG. 10) and "1106" (shown in FIG. 10).

b. The drawings also fail to comply with 37 CFR 1.84(p)(5) because they do not include one or more reference signs mentioned in the description. Note, for instance, "906" (disclosed as a "taper line" in line 19 on page 11, for instance).

c. In FIG. 3, the left-most reference sign "222" should be changed to --224-- in order to be consistent with the remainder of the disclosure.

d. In FIG. 6, "REI" should be spelled --RIE-- in order to be consistent with the remainder of the disclosure and as this is the established abbreviation for reactive ion etching.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), and/or an amendment to the specification in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
4. The abstract of the disclosure is objected to because it is not "within the range of 50 to 150 words." Appropriate correction is required. See MPEP § 608.01(b).
5. The disclosure is objected to because of the following informalities:
 - a. In lines 20 and 21 on page 10, each instance of "REI" should be spelled --RIE-- in order to be consistent with the remainder of the disclosure and as this is the established abbreviation for reactive ion etching.

- b. In line 4 on page 19, "us" should be spelled --use--.
- c. In line 11 of claim 1, "said tapered surface of said write pole" should be changed to --said tapered surface portion of said write pole-- in order to more clearly refer back to that set forth in lines 7-8 of independent claim 1.
- d. In line 1 in each of claims 2 and 3, each instance of "said tapered surface of said magnetic shield" should be changed to --said tapered surface portion of said magnetic shield-- in order to more clearly refer back to that set forth in lines 10-11 of independent claim 1.
- e. In line 3 of claim 3, line 4 of claim 4, and line 4 of claim 5, each instance of "said ABS surface" should be changed to --said air bearing surface-- in order to more clearly refer back to that set forth in line 3 of independent claim 1.
- f. In line 3 of claim 4, and line 3 of claim 5, each instance of "said ABS" should be changed to --said air bearing surface-- in order to more clearly refer back to that set forth in line 3 of independent claim 1.
- g. In line 4 of claim 4, "than tapered surface of said shield" should be changed to --than said tapered surface portion of said shield-- in order to more clearly refer back to that set forth in lines 10-11 of independent claim 1.
- h. In line 2 of claim 7, "the ABS" should be changed to --the air bearing surface-- in order to more clearly refer back to that set forth in line 3 of independent claim 1.

i. In line 2 of claim 12, "said tapered portion" should be changed to --said tapered surface-- in order to more clearly refer back to that set forth in line 8 of independent claim 8.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 5, 7 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In line 3 of claim 5, it is indefinite as to whether "said tapered surface" refers to the "tapered surface portion" set forth in lines 7-8 of independent claim 1, or the "tapered surface portion" set forth in line 11 of independent claim 1.

b. In line 4 of claim 5, "said flared portion of said shield" is indefinite because it lacks clear and/or positive antecedent basis.

c. In line 2 of claim 7, it is indefinite as to whether "said tapered portion" refers to the "tapered surface portion" set forth in lines 7-8 of independent claim 1, or the "tapered surface portion" set forth in line 11 of independent claim 1.

d. In lines 1-2 of claim 12, "said laterally flared portions" are indefinite because they lack clear and/or positive antecedent basis.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Sherrer et al. (US 6,501,619).

Sherrer teaches a magnetic write element comprising a magnetic write pole (26) having a track width (50, as shown in Fig. 2, for instance) and terminating at an air bearing surface (as shown in Fig. 12, for instance); a magnetic return pole (20) having a width substantially larger than the write pole (as shown in Fig. 2, for instance), the return pole being in magnetic connection with the write pole in a back gap area (as shown in Fig. 12, for instance); a trailing shield (34), the shield having a tapered surface that is disposed adjacent to the write pole and separated therefrom by a non-magnetic write

gap (28, as shown in Fig. 12, for instance) [as per claim 8]; wherein the tapered surface of the trailing shield defines a plane that defines an angle of less than 90 degrees with respect to the air bearing surface (as shown in Fig. 12, for instance) [as per claim 9].

10. Claims 8-9 and 11 are rejected under 35 U.S.C. 102(e) and/or 35 U.S.C. 102(a) as being anticipated by Matono et al. (US 2004/0004787).

Matono teaches a magnetic write element comprising a magnetic write pole (11) having a track width (W1) and terminating at an air bearing surface (20); a magnetic return pole (6) having a width (W3) substantially larger than the write pole (as shown in FIG. 3, for instance), the return pole being in magnetic connection with the write pole in a back gap area (as shown in FIG. 1B, for instance, and as detailed in lines 1-4 in paragraph [0049] on page 3, for instance); a trailing shield (13), the shield having a tapered surface (13TL or 13TR) that is disposed adjacent to the write pole (as shown in FIG. 3, for instance) and separated therefrom by a non-magnetic write gap (12, as shown in FIG. 1B, for instance) [as per claim 8]; wherein the tapered surface of the trailing shield defines a plane that defines an angle of less than 90 degrees with respect to the air bearing surface (as shown in FIG. 3, for instance) [as per claim 9]; and wherein the tapered shield further includes first and second laterally flared wing portions (at 13B) [as per claim 11].

11. Claims 8-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Hsu et al. (US 2005/0068678).

Hsu teaches a magnetic write element comprising a magnetic write pole (42) having a track width (as shown in Figs. 2 and 3, for instance) and terminating at an air bearing surface (ABS, as shown in Figs. 3 and 7, for instance); a magnetic return pole (43) having a width substantially larger than the write pole (as shown in Fig. 2, for instance), the return pole being in magnetic connection with the write pole in a back gap area (lines 13-14 in paragraph [0017] on page 2, for instance, i.e., the return pole must be in magnetic connection with the write pole in a back gap area in order to form a "ferromagnetic yoke" therewith); a trailing shield (44A, for instance), the shield having a tapered surface (as shown in Fig. 3, for instance) that is disposed adjacent to the write pole (as shown in Fig. 3, for instance) and separated therefrom by a non-magnetic write gap (as shown in Figs. 2 and 3, for instance) [as per claim 8]; wherein the tapered surface of the trailing shield defines a plane that defines an angle of less than 90 degrees with respect to the air bearing surface (as shown in Fig. 3, for instance) [as per claim 9]; and wherein the tapered surface of the trailing shield defines a plane defining an angle of between 60 and 90 degrees with respect to the air bearing surface (as shown in Fig. 3, for instance) [as per claim 10].

12. Claims 8-9 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Taguchi et al. (US 2004/0212923).

Taguchi teaches a magnetic write element comprising a magnetic write pole (41) having a track width (as shown in FIG. 2, for instance) and terminating at an air bearing surface (as shown in FIG. 3, for instance); a magnetic return pole (42) having a width

Art Unit: 2627

substantially larger than the write pole (as shown in FIG. 2, for instance), the return pole being in magnetic connection with the write pole in a back gap area (as shown in FIG. 3, for instance); a trailing shield (421), the shield having a tapered surface (as shown in FIG. 3, for instance) that is disposed adjacent to the write pole and separated therefrom by a non-magnetic write gap (as shown in FIG. 3, for instance) [as per claim 8]; wherein the tapered surface of the trailing shield defines a plane that defines an angle of less than 90 degrees with respect to the air bearing surface (as shown in FIG. 3, for instance) [as per claim 9]; and wherein the tapered shield further includes first and second laterally flared wing portions (as shown in FIG. 2, for instance) [as per claim 11].

Claim Rejections/Considerations - 35 USC § 103

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Pertinent Prior Art

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes Mallary (US 6,842,313), which teaches a magnetic write element comprising a magnetic write pole (70) having a track width (as shown in FIG. 3, for instance) and terminating at an air bearing surface (as shown in FIG. 2, for instance); a magnetic return pole (58) having a width substantially larger than the write

pole (as shown in FIG. 3, for instance), the return pole being in magnetic connection with the write pole in a back gap area (as shown in FIG. 2, for instance); a trailing shield (72) having a tapered surface (92) that is disposed adjacent to the write pole and separated therefrom by a non-magnetic write gap (as shown in FIG. 2, for instance).

Allowable Subject Matter

15. Claims 1-4 and 6 are allowable over the prior art of record. Claims 5 and 7 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action. Claim 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

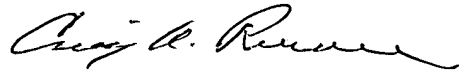
Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Monday-Tuesday & Thursday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2627

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Craig A. Renner
Primary Examiner
Art Unit 2627

CAR